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Current situation and trends in inland water transport:

Recent developments and ongoing activities

in the inland water transport sector

Boosting future-proof European inland waterway transport (NAIADES III): Inland Waterway Transport Action Plan for 2021–2027

Note by the secretariat

Mandate

1. This document is submitted in line with the Proposed Programme Budget for 2021, part V, Regional cooperation for development, section 20, Economic Development in Europe. Programme 17, Economic Development in Europe (A/75/6 (Sect.20), para. 20.51).
2. In annex I to this document, the secretariat reproduces main provisions of the Communication from the European Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions “NAIADES III: Boosting future-proof European inland waterway transport”, adopted on 24 June 2021,* and in annex II – the Action Plan annexed to the Communication from the European Commission.

* <https://ec.europa.eu/transport/sites/default/files/com20210324-naiades.pdf>.

Annex I

NAIADES III: Boosting future-proof European inland waterway transport

1. Introduction

The fundamental transformation of our transport systems towards zero-emission mobility requires an integrated multimodal approach explicitly aimed at boosting the uptake of more sustainable and less congested transport modes.

Long recognised as one of the most CO₂-efficient modes of transport (per tonnes of goods carried)¹ along with rail, inland waterway transport (IWT) is clearly seen as central to the Union's efforts to decarbonise the transport system.

The European Green Deal² called for decisive action to shift a substantial part of the freight transported by road (currently accounting for 75% of inland freight) to inland navigation and rail, namely through measures to increase the capacity of inland waterways from 2021. Similarly, the Sustainable and Smart Mobility Strategy³ adopted on 9 December 2020, which lays the foundation for how the EU** transport system can achieve its green and digital transformation and become more resilient to future crises, underlined the need to increase the use of more sustainable transport modes, and indicated that inland waterway transport and short-sea shipping should increase by 25% by 2030 and by 50% by 2050. Zero-emission mobility is also the major objective of the Zero Pollution Action Plan adopted on 12 May 2021.⁴

However, despite its environmental edge, and efforts by the sector to modernise operations, the overall modal share of the EU inland waterway transport sector has not seen the desired growth levels in recent years, remaining stable at around 6%.⁵

Strong additional action is needed to better address challenges preventing the sector from attracting higher freight volumes and seizing opportunities linked to the shift towards a zero-emission and digital economy.

The already high modal share of inland waterway freight transport in some countries such as the Netherlands (42.7%), Romania (28.1%) or Bulgaria (31.8%),⁶ as well as the increasing use of inland waterway transport in urban logistics in some of the EU's most congested cities,⁷ highlight the great potential of the sector where the conditions are right.

It is of utmost importance to preserve these accomplishments and further seize untapped potential both along TEN-T*** corridors and in those inner cities where inland waterways can green the last mile of city logistics.

Multimodal logistics must be part of this transformation, within and beyond urban areas. Today, the scarcity of transshipment infrastructure, and of inland multimodal terminals in particular, is pronounced in certain parts of Europe, and should be given the highest priority.

¹ CE Delft STREAM study.

² The European Green Deal, COM(2019)640 final.

³ Sustainable and Smart Mobility Strategy – putting European transport on track for the future, COM(2020)789 final.

** *Note by the secretariat:* European Union.

⁴ Communication from the Commission :” Towards Zero Pollution for Air, Water and Soil”, COM(2021)400 final.

⁵ Market Observatory report: https://inland-navigation-market.org/wp-content/uploads/2021/04/Market-report-2014-2019_Web_BD.pdf.

⁶ Modal split of freight transport - Inland Waterways 2019, Eurostat - Data Explorer (europa.eu).

⁷ For example, urban logistics in Paris: <http://www.inlandnavigation.eu/news/transport/sustainable-urban-mobility-and-circular-economy/> and <http://www.inlandnavigation.eu/news/innovation/floating-city-warehouse/>.

*** *Note by the secretariat:* Trans-European Transport Network.

Moreover, the inland waterway transport system must be made to work more efficiently both in itself, and within cross-border multimodal logistics chains, thanks to the optimisation of navigation conditions, a greater use of smart traffic management systems, and the multimodal exchange of data. This will not only require substantial investments in IWT and multimodal infrastructure, fleet modernisation and digitalisation, but also adaptations to the EU's policy and legal frameworks to develop inland waterway transport, namely by tackling continued market fragmentation and improving the existing framework for intermodal transport.⁸

The sector also faces new challenges, such as the intensification of climate change and extreme weather events, which severely affect its ability to operate and the reliability of services, and which require adequate EU policy responses. In addition, the sector, which is primarily composed of SMEs,[†] ⁹ has been particularly hard hit by periods of economic slowdown in Europe, seeing drops in activities in 2009–2010,¹⁰ as well as more recently due to the COVID-19 crisis, with the sector suffering a total loss of turnover of around € 2.7 billion in 2020, due to a 70% reduction in passenger transport and an 8% reduction in freight transport. These broader economic shocks and fierce price competition with other modes have hampered the sector's ability to reinvest in new or innovative technologies, and to attract workers.

As a result, the age structure of the inland fleet is relatively old, with the majority of vessels built before 2000, and ill-equipped to deal with the planned transition to zero-emission mobility.¹¹ Yet, as underscored by the Sustainable and Smart Mobility Strategy, all transport modes, including inland waterway transport, will be required to significantly reduce their dependence on fossil fuels and better internalise external costs, for instance by implementing 'polluter pays' and 'user pays' principles, in order to meet our climate neutrality and zero pollution ambitions by 2050. Renewing barge fleets and improving access to renewable and alternative low-carbon fuels will require substantial investments that will only happen if the right supportive EU frameworks are in place.

Finally, a stronger inland navigation sector also needs to be able to offer quality jobs, career opportunities and high social, safety and security standards to attract well-trained people.

2. Inland Waterway Transport Action Plan for 2021–2027

In order to address the challenges faced by the inland waterway transport sector and deliver on the objectives of the European Green Deal and the Sustainable and Smart Mobility Strategy, the Commission is now putting forward an '**Inland Waterway Transport Action Plan 2021–2027**', in line with the new multiannual financial framework and focusing on two core objectives: **shifting more freight transport to inland waterways**, and **setting the sector on an irreversible path to zero-emissions**, underpinned by a **paradigm shift towards further digitalisation**, as well as **accompanying measures to support the current and future workforce**. Meeting these core objectives will require an integrated approach and a basket of measures incorporating transport, environmental, digital, energy and fiscal policies, backed up with financial incentives,¹² as indicated below and further detailed in the Annex – Action Plan. Eight flagships have been identified.

2.1. Shifting more freight transport to inland waterways

The EU's inland waterway network spans 25 Member States¹³ with about 41,000 kilometres of inland waterways. Every year, these serve to transport around 150 billion tonne-kilometres

⁸ Enshrined in the EU's Combined Transport Directive (Council Directive 92/106/EEC).

[†] *Note by the secretariat:* small and medium-sized enterprises.

⁹ Roughly 80 % of the fleet is operated by owner-operators.

¹⁰ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52013DC0623&from=EN>.

¹¹ EU Market Observatory: <https://inland-navigation-market.org/>.

¹² IT development and procurement choices will be subject to pre-approval by the European Commission Information Technology and Cybersecurity Board.

¹³ Thirteen Member States have interconnected networks.

of cargo, carried by about 15,000 cargo vessels, while some 3,000 day-trip passenger vessels and 430 cruise vessels (>12 passengers) are in operation.¹⁴

The potential for increasing the modal share of inland waterway transport is significant, and this would also have a positive effect on greenhouse gas (GHG) emissions. However, substantially increasing volumes carried by inland waterway transport can only happen if the sector: (i) is able to provide sufficiently efficient, reliable, and safe navigation conditions, across borders and over time; (ii) is adequately connected – both physically and digitally – to other transport modes; (iii) is able to compete on a level playing field with other transport modes; and (iv) has an internal market that is well-functioning.

2.1.1. *Fit-for-future infrastructure for optimised navigation*

The use of the EU's inland waterway network is currently not optimised due to the lack of coherent infrastructure and fairway quality assurance. First and foremost, river navigation depends on precipitation and adequate water levels for its operations. Droughts and floods can severely disrupt transport activities by: temporarily blocking waterway sections, imposing restrictions on the amounts of loads transported, and requiring additional vessels to compensate reduced load factors, or even a shift to other modes. Such disruptions significantly hinder the capacity of inland waterway transport to attract more freight volumes away from road transport. And as a consequence of climate change, such weather-related disruptions will occur more often,¹⁵ with waterborne transport services and infrastructure on the front line.

Flagship 1: Helping waterway managers to ensure a high level of service (Good Navigation Status) along EU inland waterway corridors by 31 December 2030

While calling on Member States to step up fairway rehabilitation and maintenance efforts in order to uphold and improve navigation conditions, the Commission will give more support for projects¹⁶ aimed at completing and upgrading the inland waterway TEN-T network and addressing bottlenecks, with a particular focus on inland waterways that require strong coordination between Member States and adequate governance. The European Parliament¹⁷ invited the Commission to ensure stricter oversight of the implementation of the TEN-T by reinforcing relevant instruments and the role of the European coordinators in the governance of the corridors, with a focus on inland waterway cross-border projects. **The Commission will therefore consider to propose a dedicated cooperation framework for inland waterway transport within the revision of the TEN-T Regulation, which will enable Member States to better coordinate cross-border actions and projects.**

Furthermore, as part of the **TEN-T Regulation¹⁸ revision in 2021**, the Commission will **assess whether a harmonised definition of the Good Navigation Status¹⁹ is needed**, and whether certain specific requirements should be extended throughout the core network, in order to fully grasp network benefits. To reflect the heterogeneous hydro-morphology and the associated systems of different inland waterways stretches and the specific features of these different stretches,²⁰ in particular the free flowing sections, requirements could be agreed at river basin/corridor level. In particular, it will be assessed whether the quality and

¹⁴ EU and Switzerland.

¹⁵ Conclusion of the CCNR workshop on low water levels on the Rhine.

¹⁶ Under CEF 2 and Horizon Europe.

¹⁷ https://www.europarl.europa.eu/doceo/document/TRAN-PR-646914_EN.html?redirect.

¹⁸ Regulation (EU) No 1315/2013 of the European Parliament and of the Council of 11 December 2013 [...].

¹⁹ The Good Navigation Status is a concept for improving European waterways so they are part of a sustainable transport system serving the needs of the EU internal market.

Good Navigation Status means that the state of the inland navigation transport network enables efficient, reliable and safe navigation for users by ensuring, besides minimum waterway requirements, additional requirements which may be defined at river basin/corridor level while respecting applicable environmental rules and considering the wider socio-economic sustainability of waterway management.

²⁰ Including the specificities of associated ecosystems.

predictability of navigation conditions could be improved through a goal-based approach, allowing some flexibility with the requirements for specific and limited waterway stretches²¹ such as the depth of fairways and clearances under bridges, in full respect of environmental policies and legislation.²²

Helping waterway managers to ensure Good Navigation Status will also require the roll-out of smart infrastructure, operations and maintenance systems that enable the early detection (or prediction) of bottlenecks and a return to required service levels with the least possible physical intervention, thereby lowering costs as well as environmental impacts. A key precondition to this is to establish an improved digital information base ('cartography') of the actual status of the critical waterway locations. **Through the Connecting Europe Facility (CEF), the Commission will support measures that help to achieve Good Navigation Status, such as deploying cross-disciplinary digital information and operation systems for water and waterway management.**

Moreover, the greater frequency of low-water events will require a faster development and roll-out of innovative, climate-adaptable vessels²³ able to sail with low water levels while minimising impacts on aquatic ecosystems. **Horizon Europe²⁴ will provide support to adapt fleets to future environmental, climate, and safety requirements and to develop and test new methods of transport infrastructure maintenance and upgrades in order to improve safety, climate resilience and environmental impact (including air and water pollution and biodiversity) and accommodate evolving transport modes.**

2.1.2. *Seamless integration into multimodal mobility and logistics systems*

Making inland waterways more reliable as a means of transport requires action beyond the waterways. By 2030, the European inland waterway network can and must be connected as much as possible – both physically and digitally – to other transport modes. Yet today, interoperability between inland ports and hinterland connections remains an issue, and the number of multi-modal platforms and transshipment nodes is insufficient.²⁵

The Commission will give more support for projects²⁶ aimed at improving the quality of inland ports infrastructure and their multimodal connections to rail, road and sea²⁷ through dedicated terminals. A key focus will also be placed on projects in urban nodes where inland waterways can help to green the last mile of city logistics. **Horizon Europe²⁸ will also help develop new solutions for smart and connected mobility and improved integration of inland waterways with broader transport infrastructure and energy systems.**

Appropriate waterway conditions and seamless multimodal integration will be essential for waterway managers to manage their planning in case of disruptions, and for making IWT more resilient to crisis situations, such as the one created by the COVID-19 pandemic. **The Commission will prepare a transport contingency plan to ensure business continuity in the face of major disruptive events, by securing coordinated policy responses, based on the experience with the guidelines and legislations developed during the COVID-19 pandemic.** When developing this plan, the Commission should take into account the relative resilience of the IWT sector as regards the transport of goods.

²¹ The minimum requirements on draught (2.50 m) and on height under bridges (5.25 m).

²² Water Framework and Habitat Directives.

²³ Including zero-emission vessels.

²⁴ HORIZON-CL5-2021-D6-01-09: Climate resilient and environmentally sustainable transport infrastructure, with a focus on inland waterways.

²⁵ TEN-T corridors work plans: https://ec.europa.eu/transport/themes/infrastructure/downloads_en.

²⁶ Under CEF 2 and Horizon Europe.

²⁷ HORIZON-CL5-2021-D6-01-07: 'More efficient and effective multimodal freight transport nodes to increase flexibility, service visibility and reduce the average cost of freight transport' addresses this issue. It is open to all types of nodes, including IWT ports.

²⁸ HORIZON-CL5-2021-D6-01-09: Climate resilient and environmentally sustainable transport infrastructure, with a focus on inland waterways.

Flagship 2: Updating the EU’s legal framework for intermodal transport to stimulate IWT

The Combined Transport Directive is currently the only EU legal instrument that directly supports intermodal transport. **The Commission will use its upcoming revision to fully integrate inland waterways as an essential component of intermodal transport. The existing regulatory framework should be turned into an effective tool to support multimodal freight operations involving rail, inland waterway transport and short-sea shipping.**²⁹

2.1.3. Boosting the uptake of more sustainable transport modes

A significant barrier to the uptake of inland waterways remains the lack of a level playing field across transport modes when it comes to their environmental performance.

To that end, the Commission will present a comprehensive set of measures – including emissions trading, infrastructure charges, energy taxes, to ensure that the ‘polluter pays’ and ‘user pays’ principles are implemented across all transport modes. This should support the shift to more sustainable forms of transport such as inland waterways.

A significant barrier is also the lack of easily available and reliable information to support sustainable transport choices, despite the increasing interest of consumers and businesses in greener solutions.³⁰ As set out in the Sustainable and Smart Mobility Strategy, **the Commission will therefore establish an EU framework for the harmonised measurement and reporting of emissions from logistics and transport, which could then be used to provide businesses and end-users with an estimate of the carbon footprint of their choices, and increase the demand for more sustainable options, including inland waterways where feasible.**

2.1.4. A well-functioning inland waterways internal market

Improving the functioning and efficiency of the EU inland waterways market and stimulating the offer of sustainable inland waterway transport services and operations can help boost the sector’s attractiveness in relation to other modes.

Today, much of the EU legislation on accessing and organising the inland waterways market dates from between the 1960s and 1990s. The legislation does not take into account the European Union’s geographical extension, nor does it address the more recent challenges of inland navigation and of the transport sector more generally. **The European Commission has been reviewing the legislation on market access to inland waterway transport³¹ to ensure that it is fit-for-purpose and to ensure the smooth and fair functioning of the internal market.**

Although Directive (EU) 2016/1629³² introduced harmonised requirements for inland waterway vessels, differences in implementing the requirements for carrying out vessel inspections and issuing certificates by national authorities may affect the single market in terms of safety and level playing field between vessel owners.

The Commission will therefore also start reviewing Directive (EU) 2016/1629 in order to further improve harmonisation, maintaining a level playing field and guaranteeing high levels of safety in inland navigation, especially with the introduction of innovative and low-emission vessels.

²⁹ Council Directive 92/106/EEC of 7 December 1992 [...].

³⁰ LEARN project <http://www.learnproject.net/> and e.g. D2.4 Guidelines for validation and reporting of emissions, including the eco-label blueprint updated following testing. [...].

³¹ <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/11874-Fitness-check-on-market-access-in-Inland-waterway-transport>.

³² Directive (EU) 2016/1629 of the European Parliament and of the Council of 14 September 2016 [...].

2.2. Transitioning to zero-emission inland waterway transport

Despite its strong environmental record compared to other transport modes, it is nonetheless crucial that inland waterway transport quickly embarks on a pathway to zero greenhouse gas emissions by 2050, if it is to remain competitive and sustainable. This concerns both the fleet and the infrastructure, including ports and their operations.

2.2.1. Towards a zero-emissions fleet

Given the age structure of the fleet, considerable investment will be needed to ensure that vessels meet environmental, climate and safety requirements in line with the increased ambition of the European Green Deal. However, the predominance of small owner-operators, the vast diversity of shipping solutions and hydro-morphological conditions across EU inland waterways, the lack of market-ready low-carbon alternative fuels, as well as the challenging economic situation mean that the sector faces numerous barriers to investing and organising itself to implement sector-wide innovative solutions.

The newly established Zero-Emissions Waterborne Partnership³³ will promote research in zero-emission vessels technology, innovative propulsion systems and sustainable fuels, also in close collaboration with the Battery Alliance, the European Clean Hydrogen Alliance and the Renewable and Low-Carbon Fuels Value Chain Alliance.

But the greening of the inland waterway fleet should also be promoted through regulatory and financial incentives to ensure and speed up the deployment of affordable zero-emissions vessels and related low-carbon fuels and infrastructure. Innovative solutions should also promote the reduction of air and water pollutant emissions in order to reach the objectives of the Zero Pollution Action Plan.³⁴

In addition to ensuring the full implementation of Regulation (EU) 2016/1628 on pollutant emissions from non-road mobile machinery,³⁵ **the Commission will assess the need for further legislative measures to promote the uptake of zero-emissions vessels. As a first step, an agreed EU energy index methodology³⁶ is needed for monitoring and reporting carbon intensity of inland waterway vessels.**³⁷ This will serve to define carbon intensity reduction targets and draw up a technology roadmap³⁸ for the deployment of zero-emissions shipping by 2050.

Flagship 3: Speeding up certification procedures for innovative and low-emission vessels

The Commission will also assess how best to facilitate and speed up the safe testing and certification of innovative and low-emission vessels when reviewing Directive (EU) 2016/1629. Various programmes such as Horizon Europe, CEF, LIFE or regional funds could consider launching pilot projects to test innovative and low-emissions vessels in order to develop supportive enabling regulatory frameworks.

Financial opportunities, in particular for smaller operators, should be facilitated by public authorities at regional and national levels, by the river commissions, as well as at EU level through funding instruments such as InvestEU or CEF.³⁹ Furthermore, synergies between small operators could be pursued, for instance through joint purchasing, joint innovation

³³ Budget of € 530 million.

³⁴ Communication from the Commission : "Towards Zero Pollution for Air, Water and Soil", COM(2021) 400final.

³⁵ Regulation (EU) 2016/1628 of the European Parliament and of the Council of 14 September 2016 [...].

³⁶ In collaboration with the Horizon Europe zero-emission waterborne transport partnership and the H2020 Platina III project.

³⁷ Similar to the maritime Energy Efficiency Design Index.

³⁸ H2020 CSA Platina III will make a technology roadmap, built on the CCNR technology roadmap currently in preparation. Platina III will also propose a CO₂ methodology for the sector.

³⁹ Zero-emission vessels are eligible under the CEF 2 work programme for 2021–2024.

actions or further consolidation. The galvanising role of the Inland Waterway Transport Platform⁴⁰ will be crucial in this regard.

The Central Commission for the Navigation of the Rhine (CCNR) is currently coordinating studies assessing alternative fuels technologies for inland vessels and the most suitable financial instruments for supporting those technologies. The Commission, taking into account these studies, will consider under what conditions EU financial instruments can support those technological pathways that are compatible with the ambition of the European Green Deal.

The Commission will further encourage the take-up of renewable low-carbon fuels through tax incentives in the revision of the Energy Taxation Directive. The revised Energy Taxation Directive will promote the shift to less polluting fuels in inland waterway transport by introducing a harmonised EU minimum rate for the fuels used in inland waterway transport according to their environmental performance. This tax will also incentivise energy efficiencies.

The European Commission has recently published State aid-guiding templates to help Member States in designing their national plans under the Recovery and Resilience Facility,⁴¹ providing guidance on public support to inland waterway transport.⁴² In addition, in the context of the revision of the Community guidelines on State aid for railway undertakings,^{43, 44} the Commission aims to streamline the existing compatibility rules on aid for the coordination of transport. Based on the existing case practice of aid measures supporting a modal shift from road to more sustainable transport modes, the impact assessment will explore the possibility **to extend the scope of the Railway Guidelines to cover all land transport operators that can contribute to the modal shift, including inland waterway operators, as well as the possibility to exempt from the prior notification obligation those State aid measures which involve a limited risk of competition distortion.** Finally, the revision of the Guidelines on State aid for environmental protection and energy will consider enlarging their scope to include, under certain conditions, aid for inland waterway transport, including the acquisition and leasing of clean vessels, the retrofitting of vessels, as well as the recharging and refuelling infrastructure that is necessary to operate those vessels.⁴⁵

2.2.2. *Greening inland waterways infrastructure and ports*

Inland waterway transport activities can exert pressure on aquatic ecosystems, mainly due to modifications in the hydro-morphology of rivers, fragmentation of ecosystems, disruption of ecological flows, or pollution of water and sediment (e.g. from illegal discharges of oil waste, hazardous substances, or sewage and garbage from ships, as well as from ballast waters). And while efficient ports are vital to the performance of inland waterway transport and to the socio-economic development of their hinterland, the related ship traffic, cargo-handling activities and land-based hinterland connections can have a negative impact on the environment and the people living in close proximity (e.g. pollution and noise).

An integrated approach is therefore essential when considering future inland waterway transport infrastructure developments, taking into account transport needs but also

⁴⁰ The IWT Platform was created by the European Barge Union (EBU) and European Skipper's Organisation (ESO) with reserve funds [...]. One of the aims of the IWT Platform is to promote the greening of the sector. The platform is monitored by Austria, Belgium, Germany, France and the Netherlands.

⁴¹ Regulation (EU) 2021/241 of the European Parliament and of the Council of 12 February 2021 [...].

⁴² https://ec.europa.eu/competition/state_aid/what_is_new/template_RFF_low_emission_transport_modes.pdf.

⁴³ Communication from the Commission — Community guidelines on State aid for railway undertakings ("railway guidelines"), 2008/C 184/07, *OJ C 184*, 22.7.2008, p. 13.

⁴⁴ The findings of the fitness check of the railway guidelines conducted by the Commission in 2019 and 2020 are available at: <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/2044-Fitness-check-of-2012-State-aid-modernisation-package-railways-guidelines-and-short-term-export-credit-insurance>.

⁴⁵ https://ec.europa.eu/competition-policy/public-consultations/2021-ceeag_en.

environmental and societal concerns, as well as the multiple functions of waterways and ports in terms of regional economic development, water supply, energy generation and biodiversity.

Flagship 4: Guaranteeing IWT investments take into account climate and environmental objectives

In 2021, the European Commission will adopt technical guidance on climate-proofing to help promoters take into account climate and environmental objectives when investing in transport infrastructure. Furthermore, as part of this integrated approach, the Adaptation Support Tool⁴⁶ may support the development of climate change adaptation strategies and plans for inland waterways. The European Commission also supports a better integration between the Water Framework Directive and navigation policies, by providing support for integrated planning of inland waterways and a better implementation of the environmental legislation.

Inland ports as well are an essential part of the EU's transport backbone along the core Trans-European Transport (TEN-T) network, acting as significant logistics and transport nodes in the supply chain and contributing to socio-economic development in those regions. The hinterland links that inland navigation provides has enabled many of the EU's largest maritime ports to become the logistical hubs they are today. The Sustainable and Smart Mobility Strategy notes the great potential for inland ports to become zero-emission nodes, acting not only as 'transport interfaces' but as hubs for sustainable mobility and industry, clean energy and circular economy development. This will require ports to identify and implement new, environmentally-friendly and sustainable solutions – including energy efficiency, environmental strategies and monitoring tools – supporting the transition to renewable energy and zero-emission operations. The best practices followed by the most sustainable ports should become the norm and enable more sustainable forms of connectivity. **The Commission will launch a study⁴⁷ on the impacts that the port activities of selected river and sea ports can have on the environment. The study will develop and implement specific tools, such as Environmental Management Systems, as well as port-specific action plans creating a nucleus for wide-scale roll-out of environmentally sustainable port management and operations.**

The substantial deployment of clean energy solutions and sustainable alternative fuels in inland ports and along key inland waterway corridors will also be key to greening inland waterway transport. The Commission's report on the application of Directive 2014/94/EU⁴⁸ shows that the deployment of alternative fuels along the TEN-T inland waterway transport core network is very limited.

Flagship 5: Developing inland ports as multimodal alternative fuels infrastructure hubs

The Commission will propose a revision of the AFID⁴⁹ in 2021, with the aim of ensuring that the necessary recharging and refuelling infrastructure for zero-emission vessels is deployed in inland ports by 2030. As part of this revision, the Commission will assess how air quality in ports can be further improved, for instance, by making on-shore power supply available so that vessels are able to turn off their engines while at berth, with positive knock-on effects for the health of nearby residents and workers. It will also consider how inland ports can become crucial alternative fuels infrastructure hubs for multiple modes of transport. To support this work, **the Commission will also request the European Standardisation Organisation⁵⁰ to work on harmonised standards for alternative fuels infrastructure for inland ports.**

⁴⁶ Climate-ADAPT: <https://climate-adapt.eea.europa.eu/>.

⁴⁷ European Parliament pilot Study – Enabling sustainable Management and Development of Ports in the Rhine Main-Danube basin.

⁴⁸ COM (2021)103 final.

⁴⁹ Directive 2014/94/EU of the European Parliament and of the Council of 22 October 2014 [...].

⁵⁰ CEN/CENELEC and ETSI.

Furthermore, specific actions through CEF,⁵¹ Horizon 2020⁵² and Horizon Europe⁵³ will support innovative approaches for greening inland ports, including alternative fuel infrastructure. The development of zero-emission infrastructures will also be reflected in the revision of the TEN-T Regulation.

Moreover, **the Commission will assess the need for harmonised rules on waste reception infrastructure and on discharging waste to appropriate waste reception facilities.** Although a regional system related to waste exists within the Convention on the collection, deposit and reception of waste generated during navigation on the Rhine and other inland waterways (CDNI),⁵⁴ there are no harmonised EU rules preventing water pollution from vessels. Furthermore, CDNI ratification is on-going for the ban on degassing from inland vessels to reduce emissions of volatile organic compounds. **A Commission assessment of the needs could therefore also address degassing infrastructure, which should receive support from various EU funding programmes, notably CEF.**

Finally, inland ports are often situated near city centres and are key for intermodal connectivity for urban logistics. Inland waterway transport also has the potential to be an integral part of urban public transport in many cities, supporting road congestion reduction. Both aspects will be tackled in the new EU urban mobility framework, an initiative planned for 2021 and aimed at, among other things, more sustainable urban mobility planning (SUMP), including in relation to urban logistics. The Commission will look to facilitate a better integration of inland waterway passenger services in multimodal digital mobility services, **by considering the inclusion of the inland waterway transport in the scope of the Delegated Regulation (EU) 2017/1926 on multimodal travel information services⁵⁵** and in the initiative addressing market challenges for the development of multimodal digital mobility services.⁵⁶

2.3. Smart inland waterway transport

It is imperative for the inland waterway transport sector to keep up with digital developments to improve the sector's competitiveness and ensure that it becomes an active part of broader multimodal chains.⁵⁷ Further digitalisation can play a significant role in improving the efficiency and reliability of navigation and traffic management, better integrating inland waterway transport in logistics processes and multimodal chains, and reducing the administrative burden and costs of complying with and enforcing legislation.⁵⁸

Since 2005, steps have been taken to support the deployment of harmonised river information services (RIS) to enable seamless transport and traffic management on European inland waterways.⁵⁹ The RIS Directive has been one of the main drivers of digitalisation in the inland waterway transport sector through the introduction of information and communication technologies. The evaluation of Directive 2005/44/EC on RIS⁶⁰ found that the Directive has provided a strong impulse to standardise and harmonise river information services across Europe and improve safety. However, it also highlighted that full harmonisation and interoperability of RIS is yet to be achieved, given that Member States and river basins are implementing the services at different speeds and that the data varies in quality. To support the objective of inland waterways being part of a seamless system of harmonised RIS by 2030, revisions of the legal framework on RIS will aim to help close these harmonisation and

⁵¹ General calls and the Alternative fuel blending facility.

⁵² GREEN PORTS call– topic 5.1.

⁵³ Destination 6 ‘Safe, Resilient Transport and Smart Mobility services for passengers and goods’.

⁵⁴ <https://www.cdni-iwt.org/>.

⁵⁵ Commission Delegated Regulation (EU) 2017/1926 of 31 May 2017 [...].

⁵⁶ Action 37 of the Sustainable and Smart Mobility Strategy.

⁵⁷ <https://ec.europa.eu/transport/sites/transport/files/studies/2017-10-dina.pdf>.

⁵⁸ Commission Staff Working Document on Digital Inland Navigation, SWD (2018) 427 final.

⁵⁹ Directive 2005/44/EC of the European Parliament and of the Council of 7 September 2005 [...].

⁶⁰ Commission Staff Working Document Evaluation of the Directive 2005/44/EC on Harmonised River Information Services (RIS), SWD (2021) 50 final.

interoperability gaps, and contribute to improved data availability, reuse and interoperability, in line with the European Data Strategy.⁶¹

The revision of RIS also needs to take into consideration new requirements arising from emerging challenges and take into account the digital transformations occurring in the sector.⁶² For instance, RIS should play a key role as a data source feeding into the future European mobility data space,⁶³ thereby facilitating the integration of inland waterway transport into multimodal mobility and logistics chains. This means that to ensure interoperability, the technical specifications for RIS will have to constantly evolve. Streamlined revision cycles for these technical specifications in the European Committee for Standards in the field of inland navigation (CESNI)⁶⁴ could make it easier for RIS to evolve towards smart shipping and interoperability with the mobility data space and help with the sector's digital transformation in light of the synchromodal⁶⁵ developments in transport.

With this in mind, the Commission has started preparations for a possible revision of the RIS Directive in 2022. In order to complete RIS deployment by 2030, the Commission is also calling on Member States to further implement smart traffic and transport management solutions in inland waterway transport, with a specific focus on harmonised corridor management based on RIS. This can be supported via continued funding through CEF financial support for a permanent operational structure set up to provide a single point of access for RIS-based corridor information services.⁶⁶

More broadly, the sector needs an integrated and operationalised vision for the digital transformation of current traffic and transport-related business models and processes in order to make it a stronger player in the synchromodal supply chain but also to integrate game-changing technologies such as autonomous inland waterway transport, which is still at the early stages of development due to both technical and regulatory challenges.

Flagship 6: A roadmap for digitalisation and automation of IWT

The Commission will facilitate the elaboration of a holistic vision for the sector's digitalisation and automation, also identifying necessary adjustments to existing regulations, with the contribution of the Digital Inland Navigation Area (DINA),⁶⁷ NAIADES⁶⁸ and Digital Transport and Logistics Forum (DTLF)⁶⁹ Expert Groups, and supported by the Horizon 2020 Platina III project that started in January 2021.

A CEF technical assistance project will also be launched to develop closer public-private cooperation in IWT and facilitate the implementation of such a vision across all navigable EU river basins.

⁶¹ A European Strategy for Data, COM(2020) 66 final.

⁶² Digital ship operator platforms, port information systems, synchromodality, corridor management, smart shipping, and inland waterways autonomous ships.

⁶³ <https://ec.europa.eu/digital-single-market/en/european-strategy-data>.

⁶⁴ <https://www.cesni.eu/en/about-cesni/>.

⁶⁵ 'Synchronizing intermodal services between modes and with shippers with different speeds and lead times, (referred to as Synchromodality), aligning equipment and services on corridors and hubs and integrating these into networks.' [...].

⁶⁶ CEF 2 technical assistance starting in 2024.

⁶⁷ <https://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=3505&NewSearch=1&NewSearch=1>.

⁶⁸ <https://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=3497&NewSearch=1&NewSearch=1>.

⁶⁹ <https://www.dtlf.eu/>.

The Commission will also support the development, demonstration and deployment of **holistic, smart and automated shipping concepts through Horizon Europe and CEF**,⁷⁰ with a focus on the most promising applications in terms of feasibility and commercialisation, as well as in terms of environmental benefits. For instance, through Horizon Europe the Commission will support the development of an autonomous freight feeder loop service which is suitable for specific commercial applications and can provide an integrated, reliable, resilient, predictable and fully automated service, giving priority to zero GHG and pollutant emissions.⁷¹

2.4. More attractive and sustainable jobs in inland waterway transport

Approximately 44,000 people work on inland vessels, of which 60% in goods transport and 40% in passenger transport. Like other modes of transport, the inland waterway transport sector suffers from a lack of attractiveness, in particular for young people and women. Atypical working conditions and lack of information appear to be among the main causes.⁷²

The Commission will support the collection and dissemination of information on a regular basis on the labour market structure through the inland waterway transport market observatory.⁷³ This information is intended to help Member States to take relevant measures to counter the lack of qualified personnel in the sector and in their administrations and encourage more young people and women to seek a professional qualification in inland navigation.⁷⁴

The cross-border nature of many work contracts in the sector can also make it challenging for companies and workers alike to identify the applicable labour laws and social security rules. Complex and multiple rules combined with discrepancies in their implementation and ineffective enforcement can give rise to precarious employment practices. Besides clarifying the rules applicable to inland waterway transport, there is a need to evaluate the legal framework for the inland waterway transport sector, in particular the enforcement of the working time rules, the legislation on social security⁷⁵ and posting, and look at how the rules are actually implemented by Member States. In this context, there is a need to reflect on how to achieve greater harmonisation on key concepts that play a role in ensuring a genuine link between the owner/operator of the company and workers' rights. **The Commission will therefore perform a market access fitness check to evaluate the EU social security⁷⁶ and posting⁷⁷ legal frameworks for the sector and will examine ways to support Member States in enforcing the relevant legislation and in improving information exchange among enforcement authorities.**

Cross-border operators must also fulfil various requirements to ensure safe navigation. The current national crewing requirements were designed for the fleet of the previous generation, and do not take account of new technologies and working practices that modify the workload aboard. The sector needs⁷⁸ a forward-looking and flexible legal framework at EU level that establishes crewing requirements supported by a reliable, real-time, digital controlling capacity. Such digital tools could also be used to verify compliance with Directive 2014/112/EU,⁷⁹ which establishes working time arrangements for inland waterway transport employees. These on-board digital tools for recording and exchanging information on crew and vessels could at the same time improve the functioning of the inland waterway transport

⁷⁰ Subject to the provisions of the respective regulations.

⁷¹ Essential for zero-emission ships since the range is smaller than diesel vessel.

⁷² https://ec.europa.eu/transport/themes/social/studies/social_en.

⁷³ EU Market Observatory: <https://inland-navigation-market.org>.

⁷⁴ <https://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupMeetingDoc&docid=3814>.

⁷⁵ Scope of the evaluation limited to the Derogation Agreement on determination of legislation applicable to Rhine boatmen [...].

⁷⁶ Scope of the evaluation limited to the Derogation Agreement on determination of legislation applicable to Rhine boatmen [...].

⁷⁷ Posting of Workers Directive (96/71/EC) and its enforcement directive (2014/67/UE).

⁷⁸ EBU, ESO, the European Transport Federation (ETF) and Aquapol.

⁷⁹ Council Directive 2014/112/EU of 19 December 2014 [...].

market, minimise the administrative burden and increase the uptake and acceptance of electronic documents/solutions.

Flagship 7: Smart and flexible EU crewing rules

The Commission will assess the need for legislative initiatives for on-board digital tools for recording and exchanging information on crews and vessels, as well as on crewing requirements for better harmonisation at EU level.

The current and future workforce needs to be equipped with the right skills to deal with the green and digital transitions, cyber-security, synchronicity and the automation of vessels and infrastructure. Policies for lifelong learning need to be developed so that new technology can be introduced in a smooth and safe manner. Digitalisation and automation in the sector could also create new opportunities for women. To produce innovative outputs or exchange best practices, participation in transnational exchange programmes and the development of sectoral cooperation on skills should be encouraged.

The Commission therefore encourages Member States and the sector to engage in the European sectoral social dialogue to help implement the European Skills Agenda⁸⁰ for sustainable competitiveness, social fairness, equal opportunities and resilience, in particular by building up a lifelong learning strategy and by participating actively in the European Vocational Skills Week. It will also mandate CESNI to prepare standards for skills for alternative fuels operations and for environment-friendly and efficient vessel operation (eco navigation).

In the context of the relevant policies outlined in the present Communication, the Commission will continue to cooperate with the social partners, in particular through targeted dialogue within the Sectoral Social Dialogue Committee for Inland Waterway Transport.

3. Financing

The Sustainable and Smart Mobility Strategy recognises the need to improve the sector's access to financing. It is estimated that it will cost some € 27 billion just to complete the TEN-T core network for inland waterways.⁸¹ But one of the key challenges for the sector's modernisation will be to increase financial support for the transition to a zero-emission fleet.

Flagship 8: Supporting the sector and Member States in the transition to zero-emission vessels

To meet this challenge, support for the initial deployment of zero-emission vessels and the related recharging/refuelling infrastructure will be proposed through the Alternative Fuel Blending Facility and under the 2021–2023 work programme of the Connecting Europe Facility 2. Where possible, funding under the CEF 2 could be combined with other sources of funding to achieve greater impact. In addition, **the Commission will facilitate⁸² the efforts by stakeholders and Member States to create a fund to complement EU and national financial instruments for the deployment of zero-emissions vessels.**⁸³ The key is to ensure, to the greatest extent possible, that smaller vessel operators can combine their projects to receive attractive financing conditions.

With a total budget of € 672.5 billion, the Recovery and Resilience Facility⁸⁴ can benefit all sectors of the EU economy, including inland waterway transport. Inland waterway transport

⁸⁰ <https://ec.europa.eu/social/main.jsp?catId=1223#:~:text=The European Skills Agenda is a five-year,Pillar of Social Rights: access to... More.>

⁸¹ Estimated by the European Corridors Coordinators Work Plans.

⁸² H2020 CSA Platina III project.

⁸³ For example, any initiative by those Member States concerned to use the reserve funds created under Regulation (EU) 718/1999 [...].

⁸⁴ An unprecedented recovery package to kick-start the European economy was adopted by EU Member States and the European Parliament. It includes a package for EUR 1.1 trillion for the new programming period, as well as EUR 750 billion for a new recovery instrument, NextGenerationEU. The Recovery and Resilience Facility will form the central pillar of NextGenerationEU.

was also deeply affected by the COVID-19 crisis. Therefore the Commission has supported Member States that have included investments in zero-emission inland waterway transport in their recovery and resilience plans.

For 2021–2027, the Connecting Europe Facility will have a € 21.8 billion budget to support the completion of an interconnected, multimodal, sustainable, interoperable, smart, safe and secure TEN-T network, strengthening social, economic, environmental and territorial cohesion in the Union.⁸⁵ The programme will impactfully target modernisation of the inland waterway TEN-T infrastructure, for example by supporting RIS deployment, a network of alternative fuels infrastructure or multimodal platforms in inland ports along the TEN-T network.

With a € 26.2 billion guarantee, InvestEU, and its ‘Sustainable Infrastructure Window’ in particular, will also benefit the inland waterway transport sector, including SME operators, by stimulating private investment in sustainable transport infrastructure and zero-emission vessels. The strengthened Innovation Fund resulting from the Emission Trading System revision will further incentivise innovation and research in waterborne transport, as well as the deployment of zero-emission vessels. Equally, the LIFE programme will continue offering funding opportunities in inland waterways, mainly focusing on air and water quality,⁸⁶ biodiversity and enhanced resource efficiency. Finally, the Horizon Europe programme will continue to support innovative projects on inland waterway transport infrastructure and fleets, in support of digitalisation and decarbonisation.

Finally, the EU Taxonomy Climate Delegated Act⁸⁷ recognises the potential of low-carbon modes such as inland waterways to contribute to modal shift. The Commission will therefore establish relevant technical screening criteria for determining the conditions under which overall inland waterway infrastructure contributes to climate change mitigation, with a view to guiding market participants in their investment decisions.

4. Governance

The main governing structures relevant for the EU inland waterway transport sector are the European Union, the CCNR,⁸⁸ the Danube Commission,⁸⁹ and the United Nations Economic Commission for Europe (UNECE).⁹⁰ International river commissions, such as CCNR or the Danube Commission, have enabled, for more than a hundred years, free navigation on their own respective basins, including with non-EU countries.⁹¹

This governance setup is complex and its simplification could lead to further harmonisation of EU policy and reduce the administrative burden at EU and Member States level, thus increasing the sector’s efficiency. **The European Commission will continue to work with the CCNR, the Danube Commission and the Permanent Secretariat of the Transport Community to ensure, where appropriate, the coordination between the EU policies and the policies of these international organisations and indicate the possibilities for support through CEF.**

Set up in 2015, the European Committee for drawing up common standards in the field of inland navigation (CESNI)⁹² has helped to the internal market through the development of technical standards for vessels and crew. **While CESNI will continue developing technical**

⁸⁵ A tracking methodology for CEF/TEN-T to clean air has been developed under which the transport mode Inland Waterways is allocated a Rio Marker of 40%.

⁸⁶ Pilot and demonstration projects of vessels meeting Regulation (EU) 2016/1628 for inland waterway transport will be possible under the LIFE programme as air quality will be a priority topic in the LIFE sub-programme environment 2021-2027.

⁸⁷ Recital 34 of the taxonomy climate delegated act.

⁸⁸ [...] <https://ccr-zkr.org/>.

⁸⁹ [...] www.danubecommission.org/dc/en/danube-commission/.

⁹⁰ <https://unece.org/transport/inland-water-transport>.

⁹¹ Switzerland for the CCNR; Ukraine, Moldova, Russia and Serbia for the Danube Commission.

⁹² Its members are CCNR members, Member States of the EU, further representatives of international organisations and stakeholders in the field of inland navigation in Europe.

standards, the governance framework should further be addressed and enhanced through the various Member States' and stakeholders' expert groups that the Commission set up in 2017.

The Commission will continue supporting CESNI through the Connecting Europe Facility in order to develop harmonised EU technical standards for inland waterway transport.

Finally, one of the six priorities⁹³ of the current Commission is a stronger Europe in the world. Hence, the Commission will continue its cooperation with key partners and neighbours to improve connectivity links, open up new market opportunities and promote high safety and security standards through international organisations. Cooperation and coordination with the Western Balkan countries through the Transport Community, as well as with Ukraine and Moldova, is important for the implementation of this programme, and in particular, in the context of the Common Regional Market.

5. Conclusion

The European Green Deal and the Sustainable and Smart Mobility Strategy clearly set out the objectives to increase the role of inland waterway transport and to make all transport modes more sustainable, in line with the EU's climate neutrality and the zero pollution goal. The ambition to substantially increase the share of the inland freight transport carried by inland waterway transport, and to increase considerably the capacity of inland waterways in the next years call for decisive actions requiring a fundamental transformation of the sector. NAIADES III sets out a pathway to enable this transformation, meeting the ambitions for the green and digital transition of the sector, while offering attractive and sustainable jobs. The Commission will continue its close collaboration with Member States, stakeholders and international organisations active in inland waterway transport to achieve these ambitious, but crucial, objectives for the sector and to contribute to its long-term viability, growth and resilience.

⁹³ https://ec.europa.eu/info/strategy/priorities-2019-2024_en.

Annex II**Action Plan (annex to the Communication of the European Commission)****SHIFTING MORE FREIGHT TRANSPORT TO INLAND WATERWAYS**

1.	Continued support for innovative infrastructure and deployment through Horizon Europe and CEF	From 2021
2.	Revision of the TEN-T Regulation – Inland waterway transport requirements and role of coordinators	2021
3.	Deployment of cross-disciplinary digital information and operation systems for water- and waterway management through CEF	From 2022
4.	Transport crisis contingency plan(s)	2022
5.	Review of the regulatory framework for intermodal transport, including the Combined Transport Directive	2022
6.	Issue guidelines for operators and platforms on informing users about the carbon footprint of their deliveries and on offering sustainable delivery choices	2023
7.	Review the inland waterway transport market access legislation	2022
8.	Evaluation of the Directive (EU) 2016/1629 on technical requirements for inland vessels	2022

TOWARDS ZERO-EMISSION INLAND WATERWAY TRANSPORT

9.	Specific actions arising from the Mission on Healthy Oceans, Seas, Coastal and Inland Waters and from the Zero-Emission Waterborne Transport Partnership/Green Hydrogen partnership	From 2021
10.	Support through CEF for the deployment of zero-emission inland vessels	From 2021
11.	Facilitate through the H2020 Platina III project the elaboration of an EU energy index methodology for assessing carbon intensity levels of inland waterways vessels	2022
12.	Evaluate the procedure for allowing derogations in the context of Directive (EU) 2016/1629 for encouraging the navigation of zero-emission vessels on EU waterways	2023
13.	Analysis to assess the need for measures for promoting low carbon/zero-emission vessels.	2025
14.	Revision of the railways State aid guidelines – possible inclusion of IWT and possible block exemption of aid for the coordination of transport	From 2021 to 2023
15.	Revision of the State aid guidelines for environmental protection and energy, as well as the State aid Framework for research, development and innovation	2021
16.	Technical Guidance document on climate proofing on infrastructure in the period 2021–2027	2021
17.	Study to support the greening of inland ports	2021
18.	Revision of the Alternative Fuels Infrastructure Directive and a roll-out plan with funding opportunities and requirements	2021

19.	Request the European Standardisation Organisation for harmonised standards for alternative fuels infrastructure for inland waterways and ports	2021
20.	Continuous support for innovative and alternative fuels infrastructure and deployment through Horizon Europe and CEF	From 2021
21.	An assessment of the needs of waste reception infrastructure and degassing facilities	2024
22.	Revision of the Delegated Regulation (EU) 2017/1926 on multimodal travel information services with inclusion of inland waterway transport	2022

SMART INLAND WATERWAY TRANSPORT

23.	Revision of the Directive 2005/44/EC on Harmonised River Information Services	2022
24.	Technical assistance for a permanent operational structure for a single point of access for the provision of RIS-based Corridor Information Services	2024
25.	An integrated and operationalised vision for the digital transformation of the current traffic and transport related business models and processes in the sector	2023
26.	CEF technical assistance project to strengthen public-private cooperation in inland waterway transport and facilitate implementation of the digitalisation vision	2023
27.	Facilitate the Development, demonstration and the deployment of holistic Smart Shipping Concepts for the digital integration of inland waterway transport in the synchromodal supply chain, including RIS, through Horizon Europe and CEF	From 2022

TOWARDS MORE ATTRACTIVE AND SUSTAINABLE JOBS IN INLAND WATERWAY TRANSPORT

28.	Regular information on the labour market structure through the inland waterway transport market observatory	From 2022
29.	Evaluation of social legislation in the context of the market access fitness check	2023
30.	Propose measures on digital tools for recording and exchanging information on inland crew and vessels	2021
31.	Propose measures on EU crewing requirements for inland navigation	2024
32.	Request development of standards for skills for alternative fuels' operations and for environment-friendly and efficient vessel operation (eco navigation)	2022

FINANCING

33.	Facilitate the efforts of stakeholders and Member States to create a fund complementing EU and national financial instruments	2024
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GOVERNANCE

34.	Support the CESNI through the CEF technical assistance for the development of technical standards for inland waterway transport	2022
35.	Support the CCNR and the Danube Commission for ensuring, where appropriate, the coordination between EU policies and the policies of the respective international organisations	From 2022
